

REMARKS/ARGUMENTS

Applicant thanks Examiner for the detailed Office Action dated September 25, 2006. In response to the issues raised, the Applicant offers the following submissions and amendments.

Amendments

Claims 1, 19 and 38 have been amended to incorporate the features of claims 2, 20 and 39 respectively. In light of this, claims 2, 20 and 39 have been cancelled.

Accordingly, the amendments do not add any new matter.

35 USC§112 – Claims 1-54

Claims 1-54 stand rejected for lack of enablement in the description. The Applicant disagrees.

Independent claims 1, 19 and 38 define the nozzle axis to be parallel and laterally offset from the axis of ink inlet. These features are discussed on page 49 of the description and shown in Figure 93. The suspended heater generates a bubble that is symmetrical about two planes intersecting the nozzle axis (see page 49, lines 2-7). The symmetry of the bubble beneath the nozzle increases the accuracy of the drop trajectory while still avoiding cavitation corrosion from the bubble collapse point.

Laterally offsetting the ink inlet from the bubble, and therefore the nozzle, increases the fluidic drag on any reverse flow. This ensures that more of the impulse from the vapor bubble is directed to the ejection of the drop. This is described at page 49, lines 9-18.

In light of the above, we submit that the amended claims have clear support in the written description.

35 USC §102 – Claims 1, 5, 19, 23 and 24

Claims 1 and 19, *inter alia*, stand rejected for lack of novelty in light of US Application 2002/0008732 to Moon et al.

Independent claims 1 and 19 have been amended to define that the heater element is suspended within the bubble forming chamber. As described throughout the specification, suspending the heater element has significant benefits for reducing the power needed to generate the vapor bubble. The Moon reference fails to teach this feature. The heater elements shown in the cited reference are all bonded to the underlying substrate.

Accordingly, the citation fails to anticipate amended claims 1 or 19. It follows that dependent claims 5, 23 and 24 are similarly novel in view of the prior art.

35 USC §103 – Claims 6, 7, 8, 10, 11, 13, 14, 16, 18, 25, 26, 27, 29, 30, 32, 33, 35, 37, 38, 42, 43, 44, 46, 47, 49, 50, 52 and 54

Claims 6, 8, 13, 25, 27 and 32 stand rejected as obvious in light of US Application 2002/0008732 to Moon in view of US 5,841,452 to Silverbrook. Claims 11, 18, 30 and 37 stand rejected as obvious in light of Moon in view of US 5,706,041 to Kubby. Claims 7, 16, 26 and 35 stand rejected as obvious in light of Moon in view of US 5,710,070 to Chan. Claims 10 and 29 stand rejected as obvious in light of Moon in view of US 6,543,879 to Feinn et al. Claims 14 and 33 stand rejected as obvious in light of Moon in view of US 4,797,692 to Kashino et al. Claims 38 and 42 stand rejected in light of Moon in view of US 4,549,191 to Fukuchi et al. Claims 43, 44 and 50 stand rejected in light of Moon in view of US 4,549,191 to Fukuchi et al in combination with '452 to Silverbrook. Claim 46 stands rejected in light of Moon in view of US 4,549,191 to Fukuchi et al in combination with US 6,543,879 to Feinn et al. Claims 47 and 54 stand rejected in light of Moon in view of US 4,549,191 to Fukuchi et al in combination with US 5,706,041 to Kubby. Claim 49 stands rejected in light of Moon in view of US 4,549,191 to Fukuchi et al in combination with US 4,797,692 to Kashino et al. Claim 52 stands rejected in light of Moon in view of US 4,549,191 to Fukuchi et al in combination with US 5,710,070 to Chan.

As discussed above, Moon fails to anticipate all the elements of amended claims 1 and 19. Likewise Moon and Fukuchi fail to disclose all the elements of independent claim 38. With the exception of Kubby, none of the cited references teach or suggest a suspended heater element within the bubble forming chamber. However, the Kubby heater is not a beam suspended from opposing sides of the bubble forming chamber as required by independent claims 1, 19 and 38 but rather a plate that encases two heater elements and mounted over a recess that allows ink to contact both sides.

It follows that the citations fail to support a §103 rejection of the above claims.

Conclusion

It is respectfully submitted that the Examiner's rejections have been successfully traversed and the application is now in condition for allowance. Accordingly, favorable reconsideration is courteously solicited.

Very respectfully,

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